

10/578614

1/23 1AP20 Rec'd PCT/PTO 08 MAY 2006

SEQUENCE LISTING

<110> Toyota Central R&D Labs., Inc.  
Toyota Jidosha Kabushiki Kaisha

<120> Promoters effecting under exsisting organic acids

<130> FNTCA001W0

<150> JP2003-379076

<151> 2003-11-07

<160> 47

<170> PatentIn version 3.1

<210> 1

<211> 810

<212> DNA

<213> Saccharomyces cerevisiae

<400> 1

ctcgctcgca gccacgggtc aacccgattg ggatcacccc actggggccc aagcctgata	60
tccgacctcc atgaaatitt ttttttctt tcgattagca cgcacacaca tcacatagac	120
tgcgtcataa aaatacacta cggaaaaacc ataaagagca aagcgatacc tacttggaag	180
gaaaaggagc acgcttgtaa gggggatggg ggctaagaag tcattcactt tcttttcctt	240
tcgcggtccg gaccggggac cctctctct cccgcacgat ttcttcttt catatcttcc	300
ttttattcct atcccgttga agcaaccgca ctatgactaa atgggtgctgg acatctccat	360
ggctgtgact tgttgtatc tcacagtggg aacggcaccg tggctcggaa acggttcctt	420
cgtgacaatt ctagaacagg ggctacagtc tcgataatag aataataagc gcatttttgc	480
tagcgccgcc gcggcgcccg tttcccaata gggaggcgca gtttatcggc ggagctctac	540
ttcttctat ttgggtaagc cctttctgt tttcggccag tggttgctgc aggctgcgcc	600
ggagaacata gtgataaggg atgtaacttt cgatgagaga attagcaagc ggaaaaaac	660
tatggctagc tgggagtigt ttttcaatca tataaaaggg agaaattgtt gctcactatg	720
tgacagtttc tgggacgtct taacttttat tgcagaggac tatcaaatca tacagatatt	780

gtcaaaaaaa aaaaagacta ataataaaaa 810

<210> 2

<211> 869

<212> DNA

<213> *Saccharomyces cerevisiae*

<400> 2

cttgacgggt attctgagca tcttactcag tttcaagatc ttttaatgtc caaaaacatt 60  
 tgagccgatac taaatacttc tgtgttttca ttaatttata aattgtactc ttttaagaca 120  
 tggaaagtac caacatcggg tgaacagtt tttcatttac atatggitta ttggtttttc 180  
 cagtgaatga ttatttgtcg ttaccctttc gtaaaagttc taacacgttt ttaagtattg 240  
 tttagtgtgt ctttcgacat atatgattat ccctgcgcgg cttaaagttaa agatgcaaaa 300  
 aacgtaagac aactgaagtt aatttacgtc aattaagttt tccagggtaa tgatgttttg 360  
 ggcttccact aattcaataa gtgtgtcatg aaatacgttg tgaagagcat ccagaaataa 420  
 tgaaaagaaa caacgaaact gggtcggcct gtgttttctt ttctttacca cgtgatctgc 480  
 ggcatittaca ggaagtcgct cgttttgcgc agttgttgca acgcagctac ggctaacaaa 540  
 gcctagtgga actcgactga tgtgttaggg cctaaaactg gtggtgacag ctgaagtga 600  
 ctattcaatc caatcatgtc atggctgtca caaagacctt gcggaccgca cgtacgaaca 660  
 catacgtatg ctaatatgtg ttttgatagt acccagtgat cgcagacctg caattttttt 720  
 gtaggttttg aagaatatat aaaggttgca ctcatccaag atagtttttt tcttgtgtgt 780  
 ctattcattt tattattggt tgtttaaatg ttaaaaaaac caagaactta gtttcaaatt 840  
 aaattcatca cacaacaaaa caaaacaaa 869

<210> 3

<211> 957

<212> DNA

<213> *Saccharomyces cerevisiae*

<400> 3

gccctgctaa acacgcccta ctaaacactt caaaagcaac ttaaaatatt tttatcta 60

tatagctaaa	acccaatgtg	aaagacatat	catactgtaa	aagtgaaaaa	gcagcaccgt	120
tgaacgccgc	aagagtgtc	ccataacgct	ttactagagg	gctagatttt	aatggccccct	180
tcatggagaa	gttatgagga	caaatcccac	tacagaaagc	gcaacaaatt	tttttttccg	240
taacaacaaa	catctcatct	agtttctgcc	ttaaacaaag	ccgcagccag	agccgttttt	300
ccgccatatt	tatccaggat	tgttccatac	ggctccgtca	gaggctgcta	cgggatgttt	360
tttttttacc	ccgtggaaat	gaggggtatg	caggaatttg	tgcggggtag	gaaatctttt	420
ttttttttag	gaggaacaac	tggtggaaga	atgcccacac	ttctcagaaa	tgcatgcagt	480
ggcagcacgc	taattcgaaa	aaattctcca	gaaaggcaac	gcaaaatttt	ttttccaggg	540
aataaacttt	ttatgaccca	ctacttctcg	taggaacaat	ttcgggcccc	tgcgtgttct	600
tctgaggttc	atcttttaca	tttgcttctg	ctggataatt	ttcagaggca	acaaggaaaa	660
attagatggc	aaaaagtcgt	ctttcaagga	aaaatcccca	ccatctttcg	agatccccctg	720
taacttattg	gcaactgaaa	gaatgaaaag	gaggaaaata	caaaatatac	tagaactgaa	780
aaaaaaaaag	tataaataga	gacgatatat	gccaatactt	cacaatgttc	gaatctattc	840
ttcatttgca	gctattgtaa	aataataaaa	catcaagaac	aaacaagctc	aacttgtctt	900
ttctaagaac	aaagaataaa	cacaaaaaca	aaaagttttt	ttaattttta	tcaaaaa	957

&lt;210&gt; 4

&lt;211&gt; 940

&lt;212&gt; DNA

<213> *Saccharomyces cerevisiae*

&lt;400&gt; 4

cgctgaatac	gtcctgtcaa	ttcaaata	tcacgttgtg	agcagcccta	aagaagaaaa	60
cctcaacagc	agtattacta	ttacaatcaa	acaactttag	tgccgcgtga	taccgggggt	120
tgaagtgggt	gcattgagcc	gtattcttct	tccccgtaag	aaagtgtgtg	atccttttta	180
ctgcgttgta	atagcttctg	aaaacctaaa	aatgaacgc	tatgtagctc	atatccgttt	240
tgcataagta	agaataacta	cttgtgcagg	gtgccgaaag	ggatggaaaa	ccgctgcagc	300
aacccttggt	acatacagtc	ggatccatct	gacttacttt	ccttgcgtct	ccctgcgcga	360

ttttgttggc ctttttccag atcctctaga atttttcaag ggtcagccg taggaggatt	420
ctctcagaag gcaaaaacgc atcgaaagcg tgctttgtaa gaatatttgg tatggctaaa	480
gtaagcaaag ccataatccc atcccgatcc cgactcttat tccgatccct tccgccacat	540
cctgcatgtt tattcgaata ccaaattagc tcatcttcgt tatttcatca tccctttctg	600
ctatggcaag gacaagtttt tttctagcat ctcatcgaaa actttcctct ccctaattgg	660
ccaaagtttt catattcatc atcagttaga aagtataata tcaatccctt acctcattac	720
aagtgtgata acactaaaaa aatcatatat aagtctgtga gagtcttcaa ttatttagcg	780
taacacctat tcactttcta atcttgtttc ttgtttttac attctgcaat acaacacaac	840
aacaaatatt aactcaatta ttattattta taattacaaa aacaaaacaa caagtttgag	900
actttaatat cttttgatta ctaaaaacaa caaatttcaa	940

<210> 5  
 <211> 800  
 <212> DNA  
 <213> *Saccharomyces cerevisiae*

<400> 5	
cgcacccgaa ttcaatgtag cacctgagat ctcaaatagc ttttggccaa tcctaattctt	60
gaaaacttca tggtttggta aaagctcggg ggtagtttct aactcttttg tataaaccac	120
gatctcgccc ttttggccag acatctgata tgagcgtgcg tgtgagtgac ttacacttg	180
tctatccacg tcctgaagtt gttcgtgttc ttggatatt cgtgttcaag ctaataatga	240
gcctttaagg taatacaatt tataaaccac caccttggcc tcgatctatt gcgcttatgt	300
tgtctattag taatcaagaa aagaacccta aatcatcggc gtcccctgtg gggctctcgg	360
aaaaaccggt cctgacgtca ctgaaaagat ttccggcacat ggtcatggga ccagagaaaa	420
attaatccga catgtggaat atttccttcc gtttaaggtag tgagcgcgga ttttttctga	480
tttgtaatta tacggggagc tctggccaaa aaggtcagta ttgggtgatg aagtgaata	540
tcatcttttg attttcttct gtatcattct ttttcttttt ccacaccctt tccggacggt	600
attcacatat tgttgagagg ttaaatgaaa aataaagggg tggaaaatta aggacgagat	660

gtaagggaaa agcataaacg aaacattata taaaggagca caatttcctc tcccttgcca 720  
 attgtgcata taccgtttct ttataacgaa atttcaacaa accagaacaa cacaagtact 780  
 accaataacc acaacaaaac 800

<210> 6  
 <211> 901  
 <212> DNA  
 <213> *Saccharomyces cerevisiae*

<400> 6  
 tcgatggaag atgcaacttg caaatgtagt ccggttacca agagacccaa acctcttcca 60  
 ctttactatt tctcctttga gaaatatatc agtttgcggt aataggtaat atgaaaaagg 120  
 caataaaaaa aagagatact tgtcaccatc tegtctccct ttaccttttt tacttaatct 180  
 tcttcgtcgt catctgttcc atccctttcc tagcttagtc ttctccggct agttcttagt 240  
 gcggtaagca aaaaaatagc gtttttttcc cctcaccagg actttttttg ttaaccgaaa 300  
 atcggcactct ctagttttcc tggacaaaaa agacaaaatg gaaataaaca ctcatagcaa 360  
 tcagtaaaga tgtaaataat cgcagtaacg actgcacaag gatgtcagaa aaagcagttt 420  
 aattccagaa gtggttttcc aatttatcac acatgtacat gaagggaat gtttaaatac 480  
 ggtcttcgta aaacaaagga tctcttcacc tggtttcttc atttataagt agtgtctttt 540  
 tcggtaactt aagatatatc cttatttctt tcccacttct cgttatttct tctttttccc 600  
 ttttcaagtt cttcttttta tttattatta agcttatttt aattcttaga tcgttgtcac 660  
 tatcttttgt ccttattggt aagaaacatt gcgaagaaaa agaataataa aagaaactca 720  
 gaaaaaaaaa agttttcctc gaacaaaaat attattatth caataacttt ttctttctct 780  
 acatccaatt ttttgacctt attttaacat taattttttg ctttaatttt aactaatacc 840  
 taatttcact taatatctaa tcatcttctt ttaaccaca gaacaaagaa gaaaaataac 900  
 a 901

<210> 7  
 <211> 999  
 <212> DNA

&lt;213&gt; Bovine

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1).. (999)

&lt;223&gt; Lactate Dehydrogenase

&lt;400&gt; 7

atg gca act ctc aag gat cag ctg att cag aat ctt ctt aag gaa gaa	48
Met Ala Thr Leu Lys Asp Gln Leu Ile Gln Asn Leu Leu Lys Glu Glu	
1 5 10 15	
cat gtc ccc cag aat aag att aca att gtt ggg gtt ggt gct gtt ggc	96
His Val Pro Gln Asn Lys Ile Thr Ile Val Gly Val Gly Ala Val Gly	
20 25 30	
atg gcc tgt gcc atc agt atc tta atg aag gac ttg gca gat gaa gtt	144
Met Ala Cys Ala Ile Ser Ile Leu Met Lys Asp Leu Ala Asp Glu Val	
35 40 45	
gct ctt gtt gat gtc atg gaa gat aaa ctg aag gga gag atg atg gat	192
Ala Leu Val Asp Val Met Glu Asp Lys Leu Lys Gly Glu Met Met Asp	
50 55 60	
ctc caa cat ggc agc ctt ttc ctt aga aca cca aaa att gtc tct ggc	240
Leu Gln His Gly Ser Leu Phe Leu Arg Thr Pro Lys Ile Val Ser Gly	
65 70 75 80	
aaa gac tat aat gtg aca gca aac tcc agg ctg gtt att atc aca gct	288
Lys Asp Tyr Asn Val Thr Ala Asn Ser Arg Leu Val Ile Ile Thr Ala	
85 90 95	
ggg gca cgt cag caa gag gga gag agc cgt ctg aat ttg gtc cag cgt	336
Gly Ala Arg Gln Gln Glu Gly Glu Ser Arg Leu Asn Leu Val Gln Arg	
100 105 110	
aac gtg aac atc ttt aaa ttc atc att cct aat att gta aaa tac agc	384
Asn Val Asn Ile Phe Lys Phe Ile Ile Pro Asn Ile Val Lys Tyr Ser	
115 120 125	
cca aat tgc aag ttg ctt gtt gtt tcc aat cca gtc gat att ttg acc	432
Pro Asn Cys Lys Leu Leu Val Val Ser Asn Pro Val Asp Ile Leu Thr	
130 135 140	
tat gtg gct tgg aag ata agt ggc ttt ccc aaa aac cgt gtt att gga	480
Tyr Val Ala Trp Lys Ile Ser Gly Phe Pro Lys Asn Arg Val Ile Gly	
145 150 155 160	

agt ggt tgc aat ctg gat tca gct cgc ttc cgt tat ctc atg ggg gag	528
Ser Gly Cys Asn Leu Asp Ser Ala Arg Phe Arg Tyr Leu Met Gly Glu	
165 170 175	
agg ctg gga gtt cac cca tta agc tgc cat ggg tgg atc ctt ggg gag	576
Arg Leu Gly Val His Pro Leu Ser Cys His Gly Trp Ile Leu Gly Glu	
180 185 190	
cat ggt gac tct agt gtg cct gta tgg agt gga gtg aat gtt gct ggt	624
His Gly Asp Ser Ser Val Pro Val Trp Ser Gly Val Asn Val Ala Gly	
195 200 205	
gtc tcc ctg aag aat tta cac cct gaa tta ggc act gat gca gat aag	672
Val Ser Leu Lys Asn Leu His Pro Glu Leu Gly Thr Asp Ala Asp Lys	
210 215 220	
gaa cag tgg aaa gcg gtt cac aaa caa gtg gtt gac agt gct tat gag	720
Glu Gln Trp Lys Ala Val His Lys Gln Val Val Asp Ser Ala Tyr Glu	
225 230 235 240	
gtg atc aaa ctg aaa ggc tac aca tcc tgg gcc att gga ctg tca gtg	768
Val Ile Lys Leu Lys Gly Tyr Thr Ser Trp Ala Ile Gly Leu Ser Val	
245 250 255	
gcc gat ttg gca gaa agt ata atg aag aat ctt agg cgg gtg cat ccg	816
Ala Asp Leu Ala Glu Ser Ile Met Lys Asn Leu Arg Arg Val His Pro	
260 265 270	
att tcc acc atg att aag ggt ctc tat gga ata aaa gag gat gtc ttc	864
Ile Ser Thr Met Ile Lys Gly Leu Tyr Gly Ile Lys Glu Asp Val Phe	
275 280 285	
ctt agt gtt cct tgc atc ttg gga cag aat gga atc tca gac gtt gtg	912
Leu Ser Val Pro Cys Ile Leu Gly Gln Asn Gly Ile Ser Asp Val Val	
290 295 300	
aaa gtg act ctg act cat gaa gaa gag gcc tgt ttg aag aag agt gca	960
Lys Val Thr Leu Thr His Glu Glu Glu Ala Cys Leu Lys Lys Ser Ala	
305 310 315 320	
gat aca ctt tgg ggg atc cag aaa gaa ctg cag ttt taa	999
Asp Thr Leu Trp Gly Ile Gln Lys Glu Leu Gln Phe	
325 330	

<210> 8  
 <211> 332  
 <212> PRT  
 <213> Bovine

&lt;400&gt; 8

Met Ala Thr Leu Lys Asp Gln Leu Ile Gln Asn Leu Leu Lys Glu Glu  
1 5 10 15

His Val Pro Gln Asn Lys Ile Thr Ile Val Gly Val Gly Ala Val Gly  
20 25 30

Met Ala Cys Ala Ile Ser Ile Leu Met Lys Asp Leu Ala Asp Glu Val  
35 40 45

Ala Leu Val Asp Val Met Glu Asp Lys Leu Lys Gly Glu Met Met Asp  
50 55 60

Leu Gln His Gly Ser Leu Phe Leu Arg Thr Pro Lys Ile Val Ser Gly  
65 70 75 80

Lys Asp Tyr Asn Val Thr Ala Asn Ser Arg Leu Val Ile Ile Thr Ala  
85 90 95

Gly Ala Arg Gln Gln Glu Gly Glu Ser Arg Leu Asn Leu Val Gln Arg  
100 105 110

Asn Val Asn Ile Phe Lys Phe Ile Ile Pro Asn Ile Val Lys Tyr Ser  
115 120 125

Pro Asn Cys Lys Leu Leu Val Val Ser Asn Pro Val Asp Ile Leu Thr  
130 135 140

Tyr Val Ala Trp Lys Ile Ser Gly Phe Pro Lys Asn Arg Val Ile Gly  
145 150 155 160

Ser Gly Cys Asn Leu Asp Ser Ala Arg Phe Arg Tyr Leu Met Gly Glu  
165 170 175

Arg Leu Gly Val His Pro Leu Ser Cys His Gly Trp Ile Leu Gly Glu  
180 185 190

His Gly Asp Ser Ser Val Pro Val Trp Ser Gly Val Asn Val Ala Gly  
 195 200 205

Val Ser Leu Lys Asn Leu His Pro Glu Leu Gly Thr Asp Ala Asp Lys  
 210 215 220

Glu Gln Trp Lys Ala Val His Lys Gln Val Val Asp Ser Ala Tyr Glu  
 225 230 235 240

Val Ile Lys Leu Lys Gly Tyr Thr Ser Trp Ala Ile Gly Leu Ser Val  
 245 250 255

Ala Asp Leu Ala Glu Ser Ile Met Lys Asn Leu Arg Arg Val His Pro  
 260 265 270

Ile Ser Thr Met Ile Lys Gly Leu Tyr Gly Ile Lys Glu Asp Val Phe  
 275 280 285

Leu Ser Val Pro Cys Ile Leu Gly Gln Asn Gly Ile Ser Asp Val Val  
 290 295 300

Lys Val Thr Leu Thr His Glu Glu Glu Ala Cys Leu Lys Lys Ser Ala  
 305 310 315 320

Asp Thr Leu Trp Gly Ile Gln Lys Glu Leu Gln Phe  
 325 330

<210> 9

<211> 971

<212> DNA

<213> *Saccharomyces cerevisiae*

<400> 9

aagggtagcc tccccataac ataaactcaa taaaatatat agtcttcaac ttgaaaaagg 60

aacaagctca tgcaaagagg tggtagccgc acgccgaaat gcatgcaagt aacctattca 120

aagtaatatc tcatacatgt ttcatgaggg taacaacatg cgactgggtg agcatatgct 180

```

ccgctgatgt gatgtgcaag ataaacaagc aagacggaaa ctaacttctt cticcatgtaa 240
taaacacacc ccgcgtttat ttacctatct ttaaacttca acaccttata tcataactaa 300
tatttcttga gataagcaca ctgcacccat accttcctta aaagcgtagc ttccagtttt 360
tggtggttcc ggcttccttc ccgattccgc ccgctaaacg cataattttg ttgcctgggtg 420
gcatttgcaa aatgcataac ctatgcattt aaaagattat gtatgctctt ctgacttttc 480
gtgtgatgaa gctcgtggaa aaaatgaata atttatgaat ttgagaacaa ttctgtgttg 540
ttacggtatt ttactatgga ataattaatc aattgaggat tttatgcaaa tatcgtttga 600
atatttttcc gaccctttga gtacttttct tcataattgc ataatatgt ccgctgccccg 660
tttttctgtt agacggtgtc ttgatctact tgctatcggt caacaccacc ttattttcta 720
actatttttt ttttagctca ttigaatcag cttatgggtga tggcacattt ttgcataaac 780
ctagctgtcc tcgttgaaca taggaaaaaa aaatatatta acaaggctct ttcactctcc 840
ttgcaatcag atttgggttt gticccttta ttticatatt tcttgtcata ttcctttctc 900
aattattatt ttctactcat aaccacacgc aaaataacac agtcaaataca atcaaagatc 960
ccccaattct c 971

```

```

<210> 10
<211> 20
<212> DNA
<213> Artificial

```

```

<220>
<223> synthetic primer

```

```

<400> 10
cgtcgccttc actggttttag

```

20

```

<210> 11
<211> 20
<212> DNA
<213> Artificial

```

```

<220>
<223> synthtic primer

```

<400> 11  
caaaaaggcc aaagcaccag

20

<210> 12  
<211> 21  
<212> DNA  
<213> Artificial

<220>  
<223> synthtic primer

<400> 12  
caaggtaagt tgaccggtat g

21

<210> 13  
<211> 22  
<212> DNA  
<213> Artificial

<220>  
<223> synthetic primer

<400> 13  
gatggaagag ttagagtcac cc

22

<210> 14  
<211> 20  
<212> DNA  
<213> Artificial

<220>  
<223> synthtic primer

<400> 14  
tcatgggctg tttggtcttc

20

<210> 15  
<211> 20  
<212> DNA  
<213> Artificial

<220>  
<223> synthetic primer

<400> 15  
agcgtcgtag ttggcacctc

20

<210> 16  
<211> 20  
<212> DNA  
<213> Artificial

<220>  
<223> synthetic primer

<400> 16  
aattgcagtc agccgtgatg

20

<210> 17  
<211> 20  
<212> DNA  
<213> Artificial

<220>  
<223> synthetic primer

<400> 17  
tcgacagctt gctctgcttc

20

<210> 18  
<211> 20  
<212> DNA  
<213> Artificial

<220>  
<223> synthetic primer

<400> 18  
aaccaagcgt gggctaagag

20

<210> 19  
<211> 20  
<212> DNA  
<213> Artificial

<220>  
<223> synthetic primer

<400> 19

ggtttccttg gcagcgtaag

20

<210> 20

<211> 20

<212> DNA

<213> Artificial

<220>

<223> synthetic primer

<400> 20

gctgcctgtg ttcactccac

20

<210> 21

<211> 20

<212> DNA

<213> Artificial

<220>

<223> synthtic primer

<400> 21

tggctgcaaa acgttaccac

20

<210> 22

<211> 22

<212> DNA

<213> Artificial

<220>

<223> synthetic primer

<400> 22

caacgaattg aacgctgctt ac

22

<210> 23

<211> 24

<212> DNA

<213> Artificial

<220>

<223> synthetic primer

<400> 23

attcaacggc ttccttaact tctg

24

<210> 24  
 <211> 23  
 <212> DNA  
 <213> Artificial

<220>  
 <223> synthetic primer

<400> 24  
 gttttcaagg aattagacac tgc

23

<210> 25  
 <211> 23  
 <212> DNA  
 <213> Artificial

<220>  
 <223> synthetic primer

<400> 25  
 caacagtctt ttgagtagca gtc

23

<210> 26  
 <211> 35  
 <212> DNA  
 <213> Artificial

<220>  
 <223> synthetic primer

<400> 26  
 atatatgcgg ccgctcgcag ccacgggtca acccg

35

<210> 27  
 <211> 41  
 <212> DNA  
 <213> Artificial

<220>  
 <223> synthetic primer

<400> 27  
 atatatacta gtttttatta ttagtcctttt ttttttttga c

41

<210> 28  
 <211> 39  
 <212> DNA  
 <213> Artificial

<220>  
 <223> synthetic primer

<400> 28  
 atatatgcgg ccgcttgacg ggtattctga gcatcttac 39

<210> 29  
 <211> 38  
 <212> DNA  
 <213> Artificial

<220>  
 <223> synthetic primer

<400> 29  
 tatatactag ttgttttgt ttgtttgtgt gatgaatt 38

<210> 30  
 <211> 33  
 <212> DNA  
 <213> Artificial

<220>  
 <223> sybthetic primer

<400> 30  
 atatatgcgg ccgccctgct aaacacgccc tac 33

<210> 31  
 <211> 40  
 <212> DNA  
 <213> Artificial

<220>  
 <223> synthetic primer

<400> 31  
 atatatacta gtttttgatt aaaattaaaa aaactttttg 40

<210> 32  
 <211> 34  
 <212> DNA  
 <213> Artificial

<220>  
 <223> synthetic primer

<400> 32  
 atatatgcgg ccgctgaata cgtcctgtca attc

34

<210> 33  
 <211> 36  
 <212> DNA  
 <213> Artificial

<220>  
 <223> synthetic primer

<400> 33  
 atatatacta gttgaaatit gttgttttta gtaatc

36

<210> 34  
 <211> 35  
 <212> DNA  
 <213> Artificial

<220>  
 <223> synthetic primer

<400> 34  
 atatatgcgg ccgcatccga attcaatgta gcacc

35

<210> 35  
 <211> 37  
 <212> DNA  
 <213> Artificial

<220>  
 <223> synthetic primer

<400> 35  
 atatatacta gtgttttgtt gtggttattg gtagtac

37

<210> 36

<211> 47  
 <212> DNA  
 <213> Artificial

<220>  
 <223> synthetic primer

<400> 36  
 agctagctag cggccgcgat ggaagatgca acttgcaaat gtagtcc 47

<210> 37  
 <211> 47  
 <212> DNA  
 <213> Artificial

<220>  
 <223> synthetic primer

<400> 37  
 agctagctac tagtggttatt tttcttcttt gttctgtggg ttaaagg 47

<210> 38  
 <211> 42  
 <212> DNA  
 <213> Artificial

<220>  
 <223> synthetic primer

<400> 38  
 agctagctag cggccgcgtt gaatgttagc gtcaacaaca ag 42

<210> 39  
 <211> 47  
 <212> DNA  
 <213> Artificial

<220>  
 <223> synthetic primer

<400> 39  
 agctagctac tagtttgitt gtttatgtgt gtttattcga aactaag 47

<210> 40  
 <211> 42

<212> DNA  
 <213> Artificial

<220>  
 <223> synthetic primer

<400> 40  
 agctagctag cggccgcgtt gaatgttagc gtcaacaaca ag

42

<210> 41  
 <211> 37  
 <212> DNA  
 <213> Artificial

<220>  
 <223> synthetic primer

<400> 41  
 tatatactag ttgattgat ttgactgtgt tattttg

37

<210> 42  
 <211> 1052  
 <212> DNA  
 <213> Artificial

<220>  
 <223> synthetic DNA

<220>  
 <221> CDS  
 <222> (13).. (1011)  
 <223>

<400> 42  
 acagaattca ca atg gct act ttg aaa gat caa ttg att caa aat ttg ttg  
                   Met Ala Thr Leu Lys Asp Gln Leu Ile Gln Asn Leu Leu  
                   1                  5                  10

51

aaa gaa gaa cat gtt cca caa aat aaa att act att gtt ggt gtt ggt  
 Lys Glu Glu His Val Pro Gln Asn Lys Ile Thr Ile Val Gly Val Gly  
       15                  20                  25

99

gct gtt ggt atg gct tgt gct att tct att ttg atg aaa gat ttg gct  
 Ala Val Gly Met Ala Cys Ala Ile Ser Ile Leu Met Lys Asp Leu Ala  
 30                  35                  40                  45

147

gat gaa gtt gct ttg gtt gat gtt atg gaa gat aaa ttg aaa ggt gaa

195

Asp	Glu	Val	Ala	Leu	Val	Asp	Val	Met	Glu	Asp	Lys	Leu	Lys	Gly	Glu	
				50					55					60		
atg	atg	gat	ttg	caa	cat	ggc	tct	ttg	ttt	ttg	aga	act	cca	aaa	att	243
Met	Met	Asp	Leu	Gln	His	Gly	Ser	Leu	Phe	Leu	Arg	Thr	Pro	Lys	Ile	
			65					70					75			
gtt	tct	ggc	aaa	gat	tat	aat	gtt	act	gct	aat	tct	aga	ttg	gtt	att	291
Val	Ser	Gly	Lys	Asp	Tyr	Asn	Val	Thr	Ala	Asn	Ser	Arg	Leu	Val	Ile	
		80					85					90				
att	act	gct	ggc	gct	aga	caa	caa	gaa	ggc	gaa	tct	aga	ttg	aat	ttg	339
Ile	Thr	Ala	Gly	Ala	Arg	Gln	Gln	Glu	Gly	Glu	Ser	Arg	Leu	Asn	Leu	
	95					100					105					
gtt	caa	aga	aat	gtt	aat	att	ttt	aaa	ttt	att	att	cca	aat	att	gtt	387
Val	Gln	Arg	Asn	Val	Asn	Ile	Phe	Lys	Phe	Ile	Ile	Pro	Asn	Ile	Val	
110					115					120					125	
aaa	tat	tct	cca	aat	tgt	aaa	ttg	ttg	gtt	gtt	tct	aat	cca	gtt	gat	435
Lys	Tyr	Ser	Pro	Asn	Cys	Lys	Leu	Leu	Val	Val	Ser	Asn	Pro	Val	Asp	
				130					135					140		
att	ttg	act	tat	gtt	gct	tgg	aaa	att	tct	ggc	ttt	cca	aaa	aat	aga	483
Ile	Leu	Thr	Tyr	Val	Ala	Trp	Lys	Ile	Ser	Gly	Phe	Pro	Lys	Asn	Arg	
			145					150					155			
gtt	att	ggc	tct	ggc	tgt	aat	ttg	gat	tct	gct	aga	ttt	aga	tat	ttg	531
Val	Ile	Gly	Ser	Gly	Cys	Asn	Leu	Asp	Ser	Ala	Arg	Phe	Arg	Tyr	Leu	
		160					165					170				
atg	ggc	gaa	aga	ttg	ggc	gtt	cat	cca	ttg	tct	tgt	cat	ggc	tgg	att	579
Met	Gly	Glu	Arg	Leu	Gly	Val	His	Pro	Leu	Ser	Cys	His	Gly	Trp	Ile	
	175					180					185					
ttg	ggc	gaa	cat	ggc	gat	tct	tct	gtt	cca	gtt	tgg	tct	ggc	gtt	aat	627
Leu	Gly	Glu	His	Gly	Asp	Ser	Ser	Val	Pro	Val	Trp	Ser	Gly	Val	Asn	
190					195					200					205	
gtt	gct	ggc	gtt	tct	ttg	aaa	aat	ttg	cat	cca	gaa	ttg	ggc	act	gat	675
Val	Ala	Gly	Val	Ser	Leu	Lys	Asn	Leu	His	Pro	Glu	Leu	Gly	Thr	Asp	
				210					215					220		
gct	gat	aaa	gaa	caa	tgg	aaa	gct	gtt	cat	aaa	caa	gtt	gtt	gat	tct	723
Ala	Asp	Lys	Glu	Gln	Trp	Lys	Ala	Val	His	Lys	Gln	Val	Val	Asp	Ser	
			225					230					235			
gct	tat	gaa	gtt	att	aaa	ttg	aaa	ggc	tat	act	tct	tgg	gct	att	ggc	771
Ala	Tyr	Glu	Val	Ile	Lys	Leu	Lys	Gly	Tyr	Thr	Ser	Trp	Ala	Ile	Gly	

240	245	250	
ttg tct gtt gct gat ttg gct gaa tct att atg aaa aat ttg aga aga			819
Leu Ser Val Ala Asp Leu Ala Glu Ser Ile Met Lys Asn Leu Arg Arg			
255	260	265	
gtt cat cca att tct act atg att aaa ggt ttg tat ggt att aaa gaa			867
Val His Pro Ile Ser Thr Met Ile Lys Gly Leu Tyr Gly Ile Lys Glu			
270	275	280	285
gat gtt ttt ttg tct gtt cca tgt att ttg ggt caa aat ggt att tct			915
Asp Val Phe Leu Ser Val Pro Cys Ile Leu Gly Gln Asn Gly Ile Ser			
	290	295	300
gat gtt gtt aaa gtt act ttg act cat gaa gaa gaa gct tgt ttg aaa			963
Asp Val Val Lys Val Thr Leu Thr His Glu Glu Glu Ala Cys Leu Lys			
	305	310	315
aaa tct gct gat act ttg tgg ggt att caa aaa gaa ttg caa ttt taa			1011
Lys Ser Ala Asp Thr Leu Trp Gly Ile Gln Lys Glu Leu Gln Phe			
	320	325	330
taactcgagc ttggttgaac acgttgccaa ggcttaagtg a			1052

<210> 43  
 <211> 332  
 <212> PRT  
 <213> Artificial

<220>  
 <223> synthetic DNA

<400> 43

Met	Ala	Thr	Leu	Lys	Asp	Gln	Leu	Ile	Gln	Asn	Leu	Leu	Lys	Glu	Glu
1				5					10					15	

His	Val	Pro	Gln	Asn	Lys	Ile	Thr	Ile	Val	Gly	Val	Gly	Ala	Val	Gly
			20					25					30		

Met	Ala	Cys	Ala	Ile	Ser	Ile	Leu	Met	Lys	Asp	Leu	Ala	Asp	Glu	Val
		35					40					45			

Ala	Leu	Val	Asp	Val	Met	Glu	Asp	Lys	Leu	Lys	Gly	Glu	Met	Met	Asp
50						55					60				

Leu Gln His Gly Ser Leu Phe Leu Arg Thr Pro Lys Ile Val Ser Gly  
65 70 75 80

Lys Asp Tyr Asn Val Thr Ala Asn Ser Arg Leu Val Ile Ile Thr Ala  
85 90 95

Gly Ala Arg Gln Gln Glu Gly Glu Ser Arg Leu Asn Leu Val Gln Arg  
100 105 110

Asn Val Asn Ile Phe Lys Phe Ile Ile Pro Asn Ile Val Lys Tyr Ser  
115 120 125

Pro Asn Cys Lys Leu Leu Val Val Ser Asn Pro Val Asp Ile Leu Thr  
130 135 140

Tyr Val Ala Trp Lys Ile Ser Gly Phe Pro Lys Asn Arg Val Ile Gly  
145 150 155 160

Ser Gly Cys Asn Leu Asp Ser Ala Arg Phe Arg Tyr Leu Met Gly Glu  
165 170 175

Arg Leu Gly Val His Pro Leu Ser Cys His Gly Trp Ile Leu Gly Glu  
180 185 190

His Gly Asp Ser Ser Val Pro Val Trp Ser Gly Val Asn Val Ala Gly  
195 200 205

Val Ser Leu Lys Asn Leu His Pro Glu Leu Gly Thr Asp Ala Asp Lys  
210 215 220

Glu Gln Trp Lys Ala Val His Lys Gln Val Val Asp Ser Ala Tyr Glu  
225 230 235 240

Val Ile Lys Leu Lys Gly Tyr Thr Ser Trp Ala Ile Gly Leu Ser Val  
245 250 255

Ala Asp Leu Ala Glu Ser Ile Met Lys Asn Leu Arg Arg Val His Pro  
                   260                                  265                                  270

Ile Ser Thr Met Ile Lys Gly Leu Tyr Gly Ile Lys Glu Asp Val Phe  
                   275                                  280                                  285

Leu Ser Val Pro Cys Ile Leu Gly Gln Asn Gly Ile Ser Asp Val Val  
                   290                                  295                                  300

Lys Val Thr Leu Thr His Glu Glu Glu Ala Cys Leu Lys Lys Ser Ala  
                   305                                  310                                  315                                  320

Asp Thr Leu Trp Gly Ile Gln Lys Glu Leu Gln Phe  
                                   325                                  330

<210> 44  
 <211> 31  
 <212> DNA  
 <213> Artificial

<220>  
 <223> synthetic primer

<400> 44  
 atatatggat ccgcgtttat ttacctatct c

31

<210> 45  
 <211> 31  
 <212> DNA  
 <213> Artificial

<220>  
 <223> synthetic primer

<400> 45  
 atatatgaat tctttgattg atttgactgt g

31

<210> 46  
 <211> 34  
 <212> DNA  
 <213> Artificial

<220>

<223> synthetic primer

<400> 46

atatatctcg aggccagcta acttcttggt cgac

34

<210> 47

<211> 31

<212> DNA

<213> Artificial

<220>

<223> synthetic primer

<400> 47

atatatgaat tctttgattg atttgactgt g

31